

25

mentations can include implementation in one or more computer programs that are executable and/or interpretable on a programmable system including at least one program-processor, which may be special or general purpose, coupled to receive data and instructions from, and to transmit data and instructions to, a storage system, at least one input device, and at least one output device.

These computer programs (also known as programs, software, software applications or code) include machine instructions for a programmable processor, and can be implemented in a high-level procedural and/or object-oriented programming language, and/or in assembly/machine language. As used herein, the terms "machine-readable medium" "computer-readable medium" refers to any computer program product, apparatus and/or device (e.g., magnetic discs, optical disks, memory, Programmable Logic Devices (PLDs)) used to provide machine instructions and/or data to a programmable processor, including a machine-readable medium that receives machine instructions as a machine-readable signal. The term "machine-readable signal" refers to any signal used to provide machine instructions and/or data to a programmable processor.

To provide for interaction with a user, the systems and techniques described here can be implemented on a computer having a display device (e.g., a CRT (cathode ray tube) or LCD (liquid crystal display) monitor) for displaying information to the user and a keyboard and a pointing device (e.g., a mouse or a trackball) by which the user can provide input to the computer. Other kinds of devices can be used to provide for interaction with a user as well; for example, feedback provided to the user can be any form of sensory feedback (e.g., visual feedback, auditory feedback, or tactile feedback); and input from the user can be received in any form, including acoustic, speech, or tactile input.

The systems and techniques described here can be implemented in a computing system that includes a back end component (e.g., as a data server), or that includes a middleware component (e.g., an application server), or that includes a front end component (e.g., a client computer having a graphical user interface or a Web browser through which a user can interact with an implementation of the systems and techniques described here), or any combination of such back end, middleware, or front end components. The components of the system can be interconnected by any form or medium of digital data communication (e.g., a communication network). Examples of communication networks include a local area network ("LAN"), a wide area network ("WAN"), and the Internet.

The computing system can include clients and servers. A client and server are generally remote from each other and typically interact through a communication network. The relationship of client and server arises by virtue of computer programs running on the respective computers and having a client-server relationship to each other.

A number of embodiments have been described. Nevertheless, it will be understood that various modifications may be made without departing from the spirit and scope of the invention. For example, much of this document has been described with respect to a telephone dialing application, but other forms of applications and keypad layouts may also be addressed, such as keypads involving graphical icons and macros, in addition to alphanumeric characters.

In addition, the logic flows depicted in the figures do not require the particular order shown, or sequential order, to achieve desirable results. In addition, other steps may be provided, or steps may be eliminated, from the described flows, and other components may be added to, or removed

26

from, the described systems. Accordingly, other embodiments are within the scope of the following claims.

What is claimed is:

1. A computer-implemented method comprising:

during operation of a computing device in a passive monitoring mode:

receiving, at the computing device, a first voice input that comprises a particular reserved term and a first plurality of words subsequent to the particular reserved term, the computing device configured to identify a presence of the particular reserved term in voice inputs and unable to recognize any words in voice inputs while operating in the passive monitoring mode; and

determining, by the computing device, that the first voice input includes the particular reserved term;

in response to determining that the first voice input includes the particular reserved term, transitioning, by the computing device, from operation in the passive monitoring mode to operation in an active monitoring mode; and

during operation of the computing device in the active monitoring mode:

invoking, by the computing device, a speech-to-text converter to convert the first plurality of words of the first voice input to a first string of text, the computing device configured to transition back to the passive monitoring mode when no subsequent voice inputs are received within a predetermined period of time since transitioning to operation in the active monitoring mode;

submitting, by the computing device, the first string of text as a first query to a search server, the search server in communication with the computing device;

receiving, at the computing device, one or more first results related to the first query from the search service;

providing, by the computing device, the one or more first results as synthesized speech;

receiving, at the computing device, a second voice input comprising a second plurality of words, the second voice input not including the particular reserved term;

invoking, by the computing device, the speech-to-text converter to convert the second plurality of words of the second voice input to a second string of text; and submitting, by the computing device, the second string of text as a second query to the search server.

2. The method of claim 1, further comprising:

transmitting, by the computing device, the first voice input to a voice server,

wherein the received first voice input comprising the first plurality of words is received from the voice server.

3. The method of claim 1, further comprising, during operation of the computing device in the passive monitoring mode:

sensing an occurrence of the particular reserved term; and in response to sensing the occurrence of the particular reserved term, announcing that operation of the computing device in the active monitoring mode will begin.

4. The method of claim 1, where determining that the first plurality of words includes the particular reserved term comprises comparing hashed information from the first plurality of words to a hashed version of the particular reserved term.

5. The method of claim 1, wherein the particular reserved term comprises a name of a particular service.